nel generally will include characteristics that facilitate control over fluid transport, e.g., structural characteristics (an elongated indentation) and/or physical or chemical characteristics (hydrophobicity vs. hydrophilicity) and/or other characteristics that can exert a force (e.g., a containing force) on a fluid. The fluid within the channel may partially or completely fill the channel. In some cases the fluid may be held or confined within the channel or a portion of the channel in some fashion, for example, using surface tension (e.g., such that the fluid is held within the channel within a meniscus, such as a concave or convex meniscus). In an article or substrate, some (or all) of the channels may be of a particular size or less, for example, having a largest dimension perpendicular to fluid flow of less than about 5 mm, less than about 2 mm, less than about 1 mm, less than about 500 microns, less than about 200 microns, less than about 100 microns, less than about 60 microns, less than about 50 microns, less than about 40 microns, less than about 30 microns, less than about 25 microns, less than about 10 microns, less than about 3 microns, less than about 1 micron, less than about 300 nm, less than about 100 nm, less than about 30 nm, or less than about 10 nm or less in some cases. In one embodiment, the channel is a capillary. Of course, in some cases, larger channels, tubes, etc. can be used to store fluids in bulk and/or deliver a fluid to the channel.

[0045] In certain embodiments of the invention, the fluidic droplets may contain additional entities, for example, other chemical, biochemical, or biological entities (e.g., dissolved or suspended in the fluid), cells, particles, gases, molecules, or the like. In certain instances, the invention provides for the production of droplets consisting essentially of a substantially uniform number of entities of a species therein (e.g., molecules, cells, particles, etc.). For example, about 90%, about 93%, about 95%, about 97%, about 98%, or about 99%, or more of a plurality or series of droplets may each contain the same number of entities of a particular species. For instance, a substantial number of fluidic droplets produced, e.g., as described above, may each contain 1 entity, 2 entities, 3 entities, 4 entities, 5 entities, 7 entities, 10 entities, 15 entities, 20 entities, 25 entities, 30 entities, 40 entities, 50 entities, 60 entities, 70 entities, 80 entities, 90 entities, 100 entities, etc., where the entities are molecules or macromolecules, cells, particles, etc. Thus, for example, cells (or other entities) may be encapsulated in the plurality of fluidic droplets at an average ratio of no more than about 1 cell/fluidic droplet, 2 cell/fluidic droplet, etc.

[0046] In some embodiments, as mentioned, some or all of the fluidic droplets may contain one or more cells (although in other embodiments, the fluidic droplets may be free of cells). The term "cell," as used herein, is given its ordinary meaning as used in biology. The cell may be an isolated cell, a cell aggregate, or a cell found in a cell culture, in a tissue construct containing cells, or the like. Examples of cells include, but are not limited to, a bacterium (e.g., *Escherichia coli*), archaeum, or other single-cell organism, a yeast cell (e.g., *Saccharomyces cerevisiae*), a eukaryotic cell, a plant cell, or an animal cell. If the cell is an animal cell, the cell may be, for example, an invertebrate cell (e.g., a cell from a fruit fly), a fish cell (e.g., a zebrafish cell), an amphibian cell (e.g., a frog cell), a reptile cell, a bird cell, a human cell, or a cell from a non-human mammal, such as a monkey, ape, cow, sheep, goat, buffalo, antelope, oxen, horse, donkey, mule, deer, elk, caribou, water buffalo, a Camelidae (e.g., camels, llamas, alpaca, etc.), rabbit, pig, mouse, rat, guinea pig, hamster, dog, or cat. If the cell is from a multicellular organism, the cell may be from any part of the organism. For instance, if the cell is from an animal, the cell may be, for example, a cardiac cell, a fibroblast, a keratinocyte, a heptaocyte, a chondracyte, a neural cell, an osteocyte, an osteoblast, a muscle cell, a blood cell, an endothelial cell, an immune cell (e.g., a T-cell, a B-cell, a macrophage, a neutrophil, a basophil, a mast cell, an eosinophil), etc. In some embodiments, the cell may be a hematopoietic cell or a cell arising from the blood. In some cases, the cell may be a genetically engineered cell; in other cases, the cell is not genetically engineered. In one set of embodiments, the cell is a hybridoma. In certain embodiments, a fluidic droplet and/or a particular assay may include a combination of two or more cells described herein.

[0047] In some cases, the cell may be an immortal cell, while in other cases, the cell may be a non-immortal cell. In general, an immortal cell is generally one that can replicate indefinitely, under suitable conditions without adverse consequences. For instance, a cell that is not limited by the Hayflick limit (where the cell no longer divides because of DNA damage or shortened telomeres) may be immortal. Examples of immortal cells include cancer cells, hybridomas, HeLa cells, HEK cells (e.g., HEK293T) or Jurkat cells. Most naturally occurring cells (for example, blood cells, B cells, plasma cells, etc.), however, are not immortal.

[0048] In one aspect, the cell may be a cell able to secrete a species of interest, for example, an antibody, a protein (e.g., a fluorescent protein, such as GFP), a hormone, or the like. The species of interest may be any species secreted by the cell. In one set of embodiments, the cell is an antibody-producing cell. An antibody-producing cell, as used herein, is a cell that secretes antibodies under normal conditions. Non-limiting examples include B-cells (which are non-immortal) and hybridomas (which are generally immortal).

[0049] As used herein, an "antibody" refers to a protein or glycoprotein consisting of one or more polypeptides substantially encoded by immunoglobulin genes or fragments of immunoglobulin genes. The recognized immunoglobulin genes include the kappa, lambda, alpha, gamma, delta, epsilon and mu constant region genes, as well as myriad immunoglobulin variable region genes. Light chains are classified as either kappa or lambda. Heavy chains are classified as gamma, mu, alpha, delta, or epsilon, which in turn define the immunoglobulin classes, IgG, IgM, IgA, IgD and IgE, respectively. A typical immunoglobulin (antibody) structural unit is known to comprise a tetramer. Each tetramer is composed of two identical pairs of polypeptide chains, each pair having one "light" (about 25 kD) and one "heavy" chain (about 50-70 kD). The N-terminus of each chain defines a variable region of about 100 to 110 or more amino acids primarily responsible for antigen recognition. The terms variable light chain (VL) and variable heavy chain (VH) refer to these light and heavy chains respectively.

[0050] Antibodies exist as intact immunoglobulins or as a number of well characterized fragments produced by digestion with various peptidases. Thus, for example, pepsin digests an antibody below (i.e. toward the Fc domain) the disulfide linkages in the hinge region to produce F(ab)'2, a dimer of Fab which itself is a light chain joined to V_H-C_H1 by a disulfide bond. The F(ab)'2 may be reduced under mild conditions to break the disulfide linkage in the hinge region thereby converting the $(Fab')_2$ dimer into an Fab' monomer. The Fab' monomer is essentially a Fab with part of the hinge region (see, Paul (1993) *Fundamental Immunology*, Raven